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| APPLICATION NO.   | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 10/589,681  | 08/16/2006  | Toshiyuki Ogata      | SHIGA7.054APC       | 9916             |
| 20995   | 7590        | 06/24/2009           | EXAMINER            |                  |
| KNOBBE MARTENS OLSON & BEAR LLP<br>2040 MAIN STREET<br>FOURTEENTH FLOOR<br>IRVINE, CA 92614 |             | CHU, JOHN S Y        |                     |                  |
|   |             | ART UNIT             |                     | PAPER NUMBER     |
|   |             | 1795                 |                     |                  |
|   |             | NOTIFICATION DATE    |                     | DELIVERY MODE    |
|   |             | 06/24/2009           |                     | ELECTRONIC       |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

jcartee@kmob.com  
eOAPilot@kmob.com

|                              |                        |                     |  |
|------------------------------|------------------------|---------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b> | <b>Applicant(s)</b> |  |
|                              | 10/589,681             | OGATA ET AL.        |  |
|                              | <b>Examiner</b>        | <b>Art Unit</b>     |  |
|                              | JOHN S. CHU            | 1795                |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 09 April 2009.  
 2a) This action is FINAL.                    2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-3,5,6,8 and 10-22 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) 5,6,14,19,21 and 22 is/are allowed.  
 6) Claim(s) 1-3,15-18 and 20 is/are rejected.  
 7) Claim(s) 8 and 10-13 is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ .                                    |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____.   | 6) <input type="checkbox"/> Other: _____ .                        |

**DETAILED ACTION**

This Office action is in response to the remarks filed April 9, 2009.

1. The rejection under 35 U.S.C. 102(e) as being clearly anticipated by HATAKEYAMA et al (7,402,712) is **withdrawn** in view of the certified English translations which antedates the filing date of HATAKEYAMA et al (June 8, 2004).
2. The rejection under 35 U.S.C. 103(a) as being unpatentable over PARK et al (6,753,126) in view of HATAKEYAMA et al (7189,493) is **withdrawn** in view of the removal of HATAKEYAMA et al as prior art.

***Claim Rejections - 35 USC § 103***

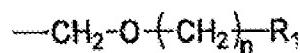
3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-3, 15-18 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over AOOI et al (6,042,991) or KANNA et al (6,753,126).

The claimed invention is remains drawn to the following:

1. (Currently amended) A polymer compound comprising:  
an alkali soluble group (i), wherein  
at least one hydrogen atom of the alkali soluble group (i) is substituted by an acid  
dissociable, dissolution inhibiting group (ii) represented by a general formula (1):

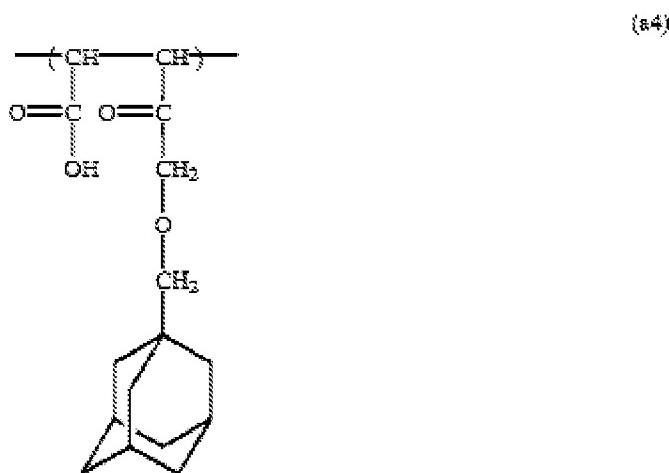


(1)

(wherein  $\text{R}_1$  represents a cycloaliphatic group which contains no more than 20 carbon atoms and may contain an oxygen atom, a nitrogen atom, a sulfur atom, or a halogen atom, and  $n$  represents 0 or an integer of 1 to 5), wherein the cycloaliphatic group contains an adamantane backbone, and wherein

the polymer compound exhibits changed alkali solubility under the action of an acid.

AOAI et al disclose chemically amplified photoresist compositions comprising a resin having the following monomer unit:

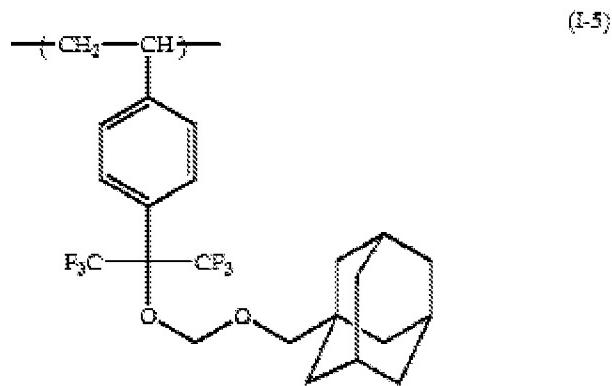


This monomer meets the claimed dissolution inhibiting group of formula (1), see column 14, lines 1-15. The photoacid generator is found in starting in column 64, line 28 – column 88, line 49.

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AOAI et al lacks a working example comprising said monomer unit of formula (a4), however the monomer of formula (a1), (a3) and (a5) among several other monomer groups are used in photoresist composition comprising a polymeric compound such that the skilled artisan would expect same or similar results as disclosed for excellent sensitivity and high resolution at radiation wavelengths of less than 250 nm.

KANNA et al discloses a chemically amplified photoresist composition comprising a monomer of the following formula:



This monomer structure meets the claimed formula group as recited in claim 1 above.

The composition further disclose acid generating compounds to increase solubility of the composition upon exposure to deep UV radiation, starting in column 28, line 6- column 60, line 53.

KANNA et al likewise lacks a working example using the specific monomer group of (I-5), however this monomer would be expected to function in an equivalent manner with the other listed groups as disclosed in columns 7-12, specifically such as monomer (I-1) in a photoresist composition.

It would have been *prima facie* obvious to one of ordinary skill in the art of chemically amplified photoresist compositions to substitute known cycloaliphatic groups of formula (a4) of AOA1 et al or the monomer of formula (I-5) of KANNA et al in a polymeric compound in a photoresist composition in the examples with reasonable expectation of same or similar results as disclosed for excellent sensitivity and high resolution at radiation wavelengths of less than 250 nm as disclosed in AOA1 et al and having transparency at a wavelength of 157 nm, with excellent etch resistance and line edge roughness as taught in KANNA et al.

5. Claims 8, 10-13 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

None of the cited prior art references anticipate or render obvious the claimed compound of formula (3) as seen in claim 8, and 10-13.

6. Claims 5, 6, 14, 19, 21 and 22 are allowed.

None of the references of record disclose or anticipated the claimed polymer compound and resist compositions as recited in those claims which having a group of formula (2) and (4) or (2) and (47) in a copolymer and in a photoresist composition.

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. KANNA et al (2004/0053161) is the Pre-grant Publication to the U.S. Patent 6,830,871 and is cited of record.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Chu whose telephone number is (571) 272-1329. The examiner can normally be reached on Monday - Friday from 9:30 am to 6:00 pm.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Cynthia Kelly, can be reached on (571) 272-1526

The fax phone number for the USPTO is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PMR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/John S. Chu/  
Primary Examiner, Art Unit 1795

J.Chu  
June 18, 2009